

PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

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WRITTEN OPINION
(PCT Rule 66)

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22.01.2002

Priority date (day/month/year)

22.01.2002

International Patent Classification (IPC) or both national classification and IPC

H04Q7/38

Applicant

NOKIA CORPORATION et al.

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I ☒ Basis of the opinion
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 22.05.2004

3. 2. 04 ✓

WV 3.12. ✓

Name and mailing address of the international preliminary examining authority:



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I. Basis of the opinion

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-25 as originally filed

Claims, Numbers

1-38 as originally filed

Drawings, Sheets

1/7-7/7 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this opinion.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	
Inventive step (IS)	Claims	1-38
Industrial applicability (IA)	Claims	

2. Citations and explanations**see separate sheet**

Reference is made to the following documents:

- D1:** WO 00 38469 A (ERICSSON TELEFON AB L M) 29 June 2000 (2000-06-29)
- D2:** WO 99 52306 A (NOKIA MOBILE PHONES LTD ;HONKASALO ZHI CHUN (FI); KALLIOKULJU JUHA) 14 October 1999 (1999-10-14)
- D3:** PLASSMANN D: 'Location management strategies for mobile cellular networks of 3rd generation' VEHICULAR TECHN.CONF., 1994 IEEE 44TH STOCKHOLM, SWEDEN 8-10 JUNE 1994, NEW YORK, NY, USA, IEEE, 8 June 1994, pages 649-653, XP010123353 ISBN: 0-7803-1927-3

Concerning Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The present application does not meet the requirements of Article 33(1) PCT, because the subject-matter of **claims 1, 16 and 31** does not involve an **inventive step** in the sense of Article 33(3) PCT.
- 1.1 Document **D1**, which is considered to be the closest prior art, discloses, according to the essential features of **claim 1**, a **method of adjusting mobility management** in a mobile communication network (*adaptive location level in mobile radio system*), the method comprising the steps of (cf. pages 10-14; figs. 2-4):
 - **providing mobility information** related to a communication unit (*flag and timer information*; cf. page 6, lines 4-16; cf. also page 5, lines 9-10);
 - **evaluating the degree of mobility** of said communication unit from said mobility information (*mobility rate for each mobile station is determined... based on the frequency of location updating*; cf. page 5, lines 7-10; cf. also **D1/claim 1**, lines 3-4: *determining a factor characterizing a relative mobility of a mobile radio*); and
 - **adjusting mobility management elements** of said communication unit in the mobile communication network on the basis of the evaluated degree of mobility (cf. **D1/claim 1**, line 5: *updating a location registration for the mobile radio*).

The subject-matter of **claim 1** differs from the disclosure of document **D1** only in that it further comprises that the mobility information is provided to a **mobility control unit**, which then performs the steps of **evaluating and adjusting**.

In contrast to this, in the method/system of **D1** no **mobility control unit** is defined, but instead a **mobile radio switching center** is described, which has in common networks the functions of **keeping accurate record of the location** of the mobile radios and of **paging** the mobile radios.

Therefore, it appears that the **mobile radio switching center** has the same purpose as the **mobility control unit** according to **claim 1**. Although in **D1** it is not explicitly described that the aforementioned steps of **evaluating and adjusting** are performed by the **mobile radio switching center**, it would be obvious to a person skilled in the art that such an entity could overtake these functions. Furthermore, the description (page 11, lines 18-26) describes that the **mobility control unit 4 can be located at different places in the mobile communication network. It may be integrated, for example, in a core network control unit executing the MM processing....**; this being for a person skilled in the art a clear hint to the possibility of including these functions in the existing **mobile radio switching center** of the network (cf. also **present claims 7 and 22**).

In addition, it appears that **D1** discloses the same object and the same type of solution as the **independent claim 1**, i.e. both methods aim at **reducing overload** due e.g. to unnecessarily paging (cf. **D1**, page 13, line 23-page 14, lines 4) by providing an **evaluation of the degree of mobility** of the mobiles and consequently **adjusting of mobility parameters**.

As a consequence, the merely fact of defining a **mobility control unit** performing the above-mentioned method steps is not considered to contribute in an inventive manner to the defined method as no different technical effect can be ascertained from this difference, since such a design measure falls within the range of normal options envisaged by a skilled person.

A skilled person, departing from the disclosure of **D1** and combining this teaching with the common knowledge in the field, would therefore arrive at the subject-matter of **claim 1** without the **without the exercise of inventive skills** (Article

33(3) PCT).

- 1.2 The same reasoning as for **claim 1** applies to **independent claims 16 and 31**, which define a **mobility control unit** and a **communication unit** for carrying out the **method** according to **claim 1**.

In particular, it is noted that the features of **claim 31** of the communication unit setting mobility parameters are also known from **D1** (cf. page 10, lines 8-19).

As a consequence, the subject-matter of **claims 16 and 31** also lacks an **inventive step** (Articles 33(3) PCT).

2. For the sake of completeness, the applicant's attention is drawn to the documents **D2-D3**, which are also considered relevant to be taken in combination with document **D1** to argue the lack of inventive step of the claimed invention.

Document **D2** relates to mobility management in packet radio networks and discloses matter relevant to location and status update. Document **D3** discloses an overview on location management strategies for mobile cellular networks and aims at minimizing signalling traffic arising from mobility management.

3. **Dependent claims 2-15, 17-30, 32-38** do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT with respect to inventive step, as their subject-matter is indeed either known or derivable from the above cited documents or concerns simple embodiments without inventive merits in themselves.

The subject-matter of **claims 2-3, 5, 8, 11-15, 17-18, 20, 23, 26-30, 32, 34-38** relate to the definition of certain mobility parameters and the actions to be taken according to these parameters, this constituting normal design measures falling within the range of options envisaged by a skilled person and not adding anything of inventive relevance to the subject-matter of the claims.

The subject-matter of **claims 4 and 19** defining the pre-setting the mobility parameters of the communication unit and/or mobility control unit to predefined parameters values is also considered to be known from **D1**, since also in **D1** certain parameters are also necessarily preset (page 7, lines 10-24; cf. figs. 2-3).

The subject-matter of **claims 6, 21 and 33** of the communication unit of being a static device and of **claims 7 and 22** about the mobility control unit being included in core network control unit do not add anything of inventive relevance to the subject-matter of the claims, since these features merely concern design options within the normal competences of a person skilled in the art.

The same argument applies to the subject-matter of **claims 9-10 and 24-25**, which relate to the different possibilities for the provider of the mobility information (communication unit or core network control), since no different technical effect can be ascertained here from.

4. **It is not at present apparent which part of the application could serve as a basis for a new, allowable claim.** Should the applicant nevertheless regard some particular matter as patentable, he is requested to **file a set of new claims** which takes account of the objections and comments given in this preliminary written opinion, and upon which the further prosecution of the application is to be based. The applicant should also **indicate** in the letter of reply **the difference of the subject-matter of the new claim vis-à-vis the state of the art and the significance thereof.**
5. When filing amended documents, the applicant should also consider the following clarity objections/matters (Article 6 PCT):
 - 5.1 **Claim 1** is unclear contrary to Article 6 PCT, since it does not clearly define that the *steps of evaluating and adjusting* are performed in/by the mobility control unit.
 - 5.2 **Independent claim 31** is unclear, contrary to Article 6 PCT, because it references the *management parameters sent from said mobility control unit* (lines 28-29), although such "sending" has not been defined before.
 - 5.3 According to Rule 6.3 (a), any claim which includes all the features of one or more other claims is considered as a **dependent claim**.
This is the case of **claim 37**, since it merely defines a system comprising a **mobility control unit according to any of claims 16 to 31**.

In order that such a claim can be considered as an **independent claim**, it should

be amended to clearly **specify all of the essential features needed to define the invention** and must be comprehensible by itself without thereby referring to other claim/s.

6. Furthermore, the following formal comments and/or objections should be taken into account by the applicant when filing amended documents:
 - 6.1 **Independent claims** should be in the **two-part form** in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document **D1**) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
 - 6.2 All features of the claims should be provided with **reference signs** placed in parentheses (Rule 6.2(b) PCT).
 - 6.3 According to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents **D1-D3** should be mentioned in the description.
7. The applicant should give care to avoid giving rise to further objections by the **inadvertent addition of subject-matter** (Article 34(2)(b) PCT) and at the same time **bring the description into conformity with the amended claims** (Rule 5.1(a)(iii) PCT).
8. In order to facilitate the examination of the conformity of the amended application with the requirements of Article 34(2)(b) PCT, the applicant is requested **to clearly identify the amendments carried out**, no matter whether they concern amendments by addition, replacement or deletion, and **to indicate the passages of the application as filed on which these amendments are based** (see also Rule 66.8(a) PCT).